Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Redesignation of the 17.7 – 19.7 GHz Frequency Band,	)	IB Docket No. 98-172
	)	
Blanket Licensing of Satellite Earth Stations in the 17.7 – 20.2 GHz and 27.5 – 30.0 GHz Frequency Band, and	)	RM Docket No. 9005
	)	
the Allocation of Additional Spectrum in the 24.75 – 25.25 GHz Frequency Bands for Broadcast Satellite Service Use	)	RM Docket No. 9118

REPLY COMMENTS OF DIRECTV ENTERPRISES, INC.

DIRECTV Enterprises, Inc. ("DIRECTV") hereby submits the following Reply Comments in the above-captioned proceeding.

I. THE COMMISSION SHOULD ALLOCATE THE 17.3-17.8 GHz BAND FOR THE EXPANSION OF BSS OPERATIONS

In its initial comments on the above-captioned Notice of Proposed Rulemaking ("Notice"), DIRECTV urged the Commission to allocate in this proceeding the 17.3 - 17.8 GHz band for Broadcast Satellite Service ("BSS") downlinks,[1] as well a portion of the 24 GHz band to the Fixed-Satellite Service ("FSS") for BSS feeder uplinks, on an exclusive, primary basis. In DIRECTV's view, the allocation is essential -- and should be made now -- to accommodate the rapid growth of DBS service in the

[1] BSS is known as DBS in the United States, and the terms are used herein interchangeably.

United States. Furthermore, to properly design and secure funding for next-generation BSS satellite systems, DBS operators must have the requisite assurance that their systems will operate in an environment free from interference from terrestrial fixed service ("FS") and other satellite or feeder link operations.

Virtually all of the GSO satellite interests in this proceeding support allocating spectrum for reverse band BSS operations at 17 and 24 GHz as the Commission has proposed, and as DIRECTV has advocated.[2] Those parties who do not support reverse band operations generally are terrestrial users interested simply in protecting the 17.7-17.8 GHz band as one of several frequency bands available for FS use. SkyBridge, an unproven NGSO paper system, also lodges a series of frivolous objections to the use of the 17 GHz band for reverse band BSS operations. DIRECTV addresses these arguments below.

A. The Commission Should Transition Fixed Service Users Out Of The 17.7-17.8 GHz Band

There is little dispute that the prospect of achieving a workable co-existence between ubiquitous BSS user terminals and a large number of FS microwave links at 17.7-17.8 GHz is a meager one.[3] In its initial comments, DIRECTV observed that continuing to allow terrestrial systems to proliferate in the top 100 MHz of the 17

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[2] *See, e.g.,* Comments of the Spectrum & Orbit Utilization Section of the Telecommunications Industry Association at 4; Comments of Visionstar at 14-15; *see also Notice* at ¶ 75 (GE Americom, Lockheed Martin and Loral have acknowledged the public interest benefit of BSS allocation at 17.3-17.8 GHz).

[3] *See, e.g.*, Comments of Comsearch at 9; Comments of the Fixed Wireless Communications Coalition at 9; Comments of SBC Communications, Inc. at 7; Comments of Tadiran Microwave Networks at 5.

GHz band will substantially increase the potential for interference into future BSS operations in that band segment, and will make any definitive planning of BSS system deployment exceedingly difficult, if not impossible. Commenting from the other direction, terrestrial microwave users similarly have noted that BSS operations at 17.7-17.8 GHz band will "freeze future FS growth"[4] and "impact the long-term viability of the band" for terrestrial use.[5]

Given the undisputed difficulty of accommodating FS and BSS operations in this band, DIRECTV believes that future FS growth should indeed be "frozen" at 17.7-17.8 GHz, and urges the Commission to do so immediately. The 17.7-17.8 GHz band already is used for BSS uplink purposes today and has been recognized by the United States as a primary expansion band for "next generation" BSS satellite systems that will utilize reverse band operations.[6] DIRECTV also has proffered a variety of factors that continue to accelerate the need for expansion BSS spectrum, and that support an exclusive allocation of 17.3-17.8 GHz frequencies for BSS downlink use on a going-forward basis.

According to DIRECTV's research, there are approximately 333 licensees operating on approximately 571 microwave paths at 17.7-17.8 GHz.

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[4] Comments of Tadiran Microwave Networks at 5.

[5] Comments of Comsearch at 9.

[6] *Preparation for the International Telecommunication Union World Administrative Radio Conference*, 6 FCC Rcd 3900, 3910, ¶¶ 75-77 (1991) ("*WARC-92 Report*"). It was not clear then whether such next generation BSS service could be provided in the existing 12 GHz band, or whether a separate band was required. Now that the 12 GHz band is becoming congested, the 17 GHz band provides a means to accommodate the additional digital BSS needs that cannot be met at 12 GHz.

DIRECTV believes that these licensees should be grandfathered and accorded co-primary status with BSS operations until April 1, 2007, at which time they should be out of the band entirely or, at a minimum, operating on a strict secondary basis. This period of time is more than enough to transition their terrestrial operations to other frequencies.[7] Of course, no new licenses should be granted in the band, and DIRECTV accordingly urges that a freeze on such licensing be implemented immediately.

While the co-existence of different services in the same spectrum often poses policy dilemmas, there are very few bands that can be used for expansion BSS use. FS users, by contrast, can be transitioned relatively easily to other frequencies.[8] As mentioned, an exclusive primary allocation in 1999 of the 17.3 - 17.8 GHz band for BSS (and the corresponding allocation of BSS feeder link spectrum at 24 GHz) for operational use in 2007 is consistent with the approach that the Commission has previously taken with respect to BSS/FS sharing issues.[9] When it initially authorized DBS service in the United States at 12 GHz, the Commission halted licensing of terrestrial fixed operations in those frequencies, and began taking measures to transition

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[7] As opposed to immediate relocation, setting "a sufficiently long period of time" will "allow normal replacement of equipment to occur," thus "minimizing the cost to existing terrestrial users." Inquiry into the development of regulatory policy in regard to Direct Broadcast Satellites for the period following the 1983 Regional Administrative Radio Conference, *Report and Order,* 90 FCC 2d 676, 693, ¶ 46 (1982).

[8] *See, e.g., id.* at 700, ¶ 63 (in relocating FS users from 12 GHz to accommodate DBS service, Commission noted that "many fixed service users can be accommodated" at other frequency bands). DIRECTV notes that the Commission recently proposed to allocate spectrum transferred from the NTIA at 3650-3700 MHz for FS use. *See News Release*, "Commission Proposes to Allocate the 3650-3700 MHz Band for Fixed Services" (rel. Dec. 17, 1998).

[9] *See* 90 FCC 2d at 702, ¶ 67.

existing 12 GHz terrestrial fixed microwave users out of the band.[10] It should do so here with respect to reverse band BSS operations.

B. Allocating the 17.3-17.8 GHz Band and Corresponding 24 GHz Frequencies For BSS Use Now Is Entirely Appropriate to Facilitate the Expansion of BSS Services

SkyBridge is the only satellite entity that has objected to a pre-2007 allocation of spectrum for reverse band operations. SkyBridge first asserts that the allocation would be "premature," and that "[t]here is no rational [sic] to make such an allocation at this juncture" given the rapid evolution of technology. That assertion is misplaced.

There is every reason to allocate the 17.3-17.8 GHz band for BSS use as quickly as possible. Just days ago, the Commission observed that cable operators continue to dominate some 85% of the multichannel video programming distribution ("MVPD") market,[11] and correspondingly, that DBS operators are the best hope of diminishing cable's market power.[12] Unlike cable operators, however, DBS providers' service ultimately is spectrum constrained. As the cable industry continues to "invest in improved facilities, either through upgrades or rebuilding," resulting in "increases in channel capacity" and the "deployment of digital transmissions that provide better

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[10] *See* Initiation of Direct Broadcast Satellite Service -- Effect on 12 GHz Terrestrial Point-to-Point Licensees in the Private Operational Fixed Radio Service, *Public Notice*, 10 FCC Rcd 1211 (1994) ("12 GHz Public Notice").

[11] *See News Release*, "Commission Adopts Fifth Annual Report on Competition in Video Markets" (rel. Dec. 17, 1998) ("Competition Report News Release"), at 1. The report also finds that between June 1997 and June 1998 cable rates rose 7.3% compared to a 1.7% increase in the Consumer Price Index. *Id.* at 2.

[12] *See id.* at 1 (noting that DBS subscribership between June 1997 and June 1998 grew from approximately 5 million to 7.2 million subscribers).

picture quality,"[13] DBS operators *must* have access to expansion capacity if they are to continue to grow as cable competitors.

On this point, the Commission simply can take administrative notice of the incorrectness of SkyBridge's naked assertion that "there is no shortage of BSS capacity."[14] SkyBridge ignores the incontrovertible facts that (1) due to the inherent limitations in the ITU's BSS Plan for Region 2, only three orbital locations are available to the U.S. in the 12.2-12.7 GHz band (the "Planned BSS Band") for full-CONUS BSS service, (2) that all of the available channels at those three locations are already licensed by the Commission, with U.S.-licensed BSS systems now operating at two of the three locations,[15] and (3) that neighboring countries to the U.S., including Mexico, Canada and Argentina, have proposed, or notified the Commission of an intention to propose, to modify their BSS assignments to allow coverage of the U.S., which will further constrain the ability of the U.S. to attempt to obtain additional BSS capacity at 12 GHz

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[13] *Id.* at 4.

[14] Comments of SkyBridge at 4; *see also* Comments of Teligent at 7.

[15] DIRECTV is the licensee of 27 of the 32 frequencies at 101° W.L., and is seeking approval to acquire the additional five frequencies at that location and three frequencies at 110° W.L. pursuant to the merger of its parent company with United States Satellite Broadcasting Co., Inc. ("USSB"). *See* USSB and DIRECTV, Application for Consent to Transfer Control of DBS and Related Authorizations (filed Dec. 17, 1998). Echostar and its affiliates are operating from 119° W.L. using twenty-one DBS frequencies, and Tempo, the licensee of the other eleven frequencies at 119°, has launched a satellite into that location as well. Echostar is seeking approval to acquire MCI's DBS license for twenty-eight frequencies at 110° W.L. *See* Satellite Policy Branch Information: Applications Accepted for Filing, Report No. SPB-144 (Dec. 15, 1998). SkyBridge's statement that USSB's DBS system is "yet to be constructed," Comments of SkyBridge at 4, is obviously in error, since USSB has been providing DBS service since 1994 from 101° W.L.

in Region 2.[16] Indeed, the Commission already has *expressly taken notice* of the "scarcity of full-CONUS DBS spectrum."[17] The *Notice's* suggestion[18] that U.S. DBS operators will need additional spectrum for future growth[19] is absolutely accurate, and the fact that the 17.3-17.8 GHz bands have not been "planned" internationally will provide the Commission with an important opportunity to afford U.S. satellite operators greater flexibility and capacity in their BSS operations.[20]

It is also is in the public interest to make this allocation now, for the reasons DIRECTV has stated previously. Giving DBS operators incentives to innovate -- and incentives to spend hundreds of millions of dollars on new satellite systems -- also requires giving them the certainty that their investment will not be for naught.

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[16] The Commission has acknowledged the difficulty of modifying the BSS plan to accommodate additional U.S. Systems. *See Revision of Rules and Policies for the Direct Broadcast Satellite Service*, 11 FCC Rcd at 9712, 9727, ¶ 38 (1995).

[17] *Id.* at 9723, ¶ 28.

[18] *Notice* at ¶ 79.

[19] It is also significant that even as SkyBridge seeks to limit the prospects for BSS expansion, SkyBridge and other NGSO interests have requested more spectrum in Region 2 than is currently allocated to BSS. The amount of spectrum below 40 GHz currently or proposed to be available for BSS downlink use is 1 GHz (the 12.2 - 12.7 GHz band currently used for BSS downlinks and proposed reverse band downlinks at 17.3 - 17.8 GHz). By contrast, the amount of spectrum identified for NGSO FSS downlink use by WRC-97 is more than 3 GHz in Region 2. Similarly, the amount of uplink spectrum available for feeder links to support BSS also is 1 GHz (17.3 - 17.8 currently used for BSS uplinks and 24.75-25.25 proposed in the *Notice*), whereas the amount of spectrum identified by WRC-97 for NGSO FSS feeder link use also exceeds 3 GHz.

[20] Use of the 17.3-17.8 GHz band for BSS is not constrained by the orbital spacing or other technical limitations of the ITU's Region 2 plan. As noted in its initial Petition for Rulemaking, RM-9118 (June 5, 1998) ("Petition"), DIRECTV believes that it will be possible to use orbital spacing in this band as close as 4.5° and still provide service to antennas 18 inches in diameter without the need for breakthroughs in ground antenna technology. *See Petition* at 7-8.

Extensive delays in BSS system planning for this band segment will increase uncertainty regarding the viability of BSS system deployment in the band, and more important, a delay in allocating the band to BSS inevitably will delay implementation and distribution of expanded, innovative BSS services to consumers.

Although international footnote S5.517 provides that the allocation for BSS at 17.3-17.8 GHz does not come into effect until April 1, 2007,[21] SkyBridge has not shown any reason to constrain use of that band in the United States for BSS prior to that date. Indeed, as long as BSS downlinks do not cause harmful interference to any other co-primary service in the band, there is no conceivable reason not to permit use of this band in the U.S. before 2007. The U.S. has supported advancing the availability dates for spectrum allocations where a demonstrated need exists before the allocation is scheduled to be effective,[22] and there is indeed such a need here.

As DIRECTV commented initially, the Commission can and should promptly allocate in this proceeding the 17.3-17.8 GHz band for BSS downlinks, and corresponding 24 GHz spectrum for BSS feeder uplinks,[23] even if a use restriction is

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[21] *See Notice* at n.8.

[22] *See generally In the Matter of Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service*, ET Docket No. 95-18, RM-7927, PP-28, First Report and Order and Further Notice of Proposed Rulemaking (rel. Mar. 14, 1997), at ¶ 8 n.19.

[23] Teligent does not object to the allocation of the 24.75 - 25.05 GHz band for BSS feeder links, Comments of Teligent at 6 & n.9, but has expressed concerns regarding the allocation of the 25.05 - 25.25 GHz band (the frequencies that overlap with the DEMS allocation) for such use. Thus, Teligent has asked the Commission at a minimum to defer the allocation of these frequencies until 2007. *Id.* at 8. As noted in DIRECTV's initial comments, while DIRECTV does not oppose co-primary status with the DEMS service at 25.05 - 25.25 GHz (as proposed in the *Notice*) DIRECTV now is designing its expansion system to use only the 24.75 – 25.05 GHz frequencies for its feeder link operations. Because

imposed that would not permit actual BSS system operation until U.S. Government and/or Department of Defense concerns are alleviated, or the year 2007, whichever is earlier. The Commission should then proceed promptly in 1999 with the promulgation of service rules and the licensing of BSS systems to use that spectrum, as DIRECTV has urged.

C. There Is and Should Be No Constraint on the Uses to Which BSS Expansion Capacity Should Be Put

SkyBridge argues that the Commission should not allocate additional spectrum for BSS expansion because the allocation was intended "solely" for the offering of BSS "high definition television service."[24] That proposition makes no sense.

First, in making this assertion, SkyBridge can point to *nothing* in the Radio Regulations that limits BSS downlink use of the 17.3-17.8 GHz band to any particular type of BSS service, any particular modulation scheme, or any particular channel size (wide or narrow band). To the contrary, in stark contrast to the constraints imposed by the Region 2 Plan on BSS service at 12 GHz, the Radio Regulations governing use of the 24 and 17 GHz bands impose no such limits on BSS service utilizing these bands.[25] SkyBridge's hypothesis as to the use to which expansion BSS

DIRECTV's BSS operations at 24.75 - 25.05 GHz therefore will not conflict with DEMS or any other terrestrial service, there is no impediment to immediate allocation of that spectrum for BSS feeder link use.

[24] Comments of SkyBridge at 3-4.

[25] Resolution 526 of the Radio Regulations urges administrations to "study the development of future regulatory provisions for BSS (HDTV)" and indicates that such matters may be addressed at a future WRC. It in no way limits use of the 17 (or 24) GHz band(s) to "HDTV." Indeed, as DIRECTV has earlier noted, the term "HDTV BSS" is nowhere defined in the Radio Regulations, and, standing alone, can have many different meanings. Relative to the state of technology during the preparations for WARC-92, DIRECTV's current digital service

capacity must be put has no basis in the dispositive text of the Radio Regulations.

Second, SkyBridge's assertion flies directly in the face of U.S. spectrum policy, which has been to advocate the broadest and most flexible use of existing spectrum allocations. The suggestion that a reverse band allocation should not accommodate *all* existing services, HDTV services, and innovative future services,[26] is simply insupportable.

D. BSS Reverse Band Operations Will Easily Accommodate *Existing* Satellite Systems

SkyBridge's final claim is that DIRECTV's proposed reverse band operations may threaten the "ability of BSS systems to coexist" with other GSO, FS and NGSO systems such as SkyBridge.[27] As to the first two constituencies, DIRECTV has addressed the issue of coexistence with FS terrestrial users, urging that current users be grandfathered and relocated from the 17.7-17.8 GHz band after a suitable period of time, and that no new FS users be licensed to use those frequencies. No GSO operator has opposed reverse band BSS operations at 17 GHz -- to the contrary, as mentioned, the GSO community has been supportive of the allocation.

To the extent that what SkyBridge really seeks is accommodation of its NGSO "Gateway" earth station terminals,[28] SkyBridge offers no reason why its

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could be considered "HDTV." In any event, however, that question of interpretation is irrelevant, because the text of the Radio Regulations *nowhere* mandates that a specific type of BSS service must be offered in the 17 GHz band.

[26] *See* Comments of SkyBridge at 4 & n.11.

[27] *Id.* at 5.

[28] SkyBridge offers a muddled argument that DIRECTV's "true intention" in

operations should be accorded even secondary status in the band when (i) the 17.3-17.8 GHz band is allocated today for BSS uplink operations domestically and internationally, (ii) the allocation for 17.3-17.8 GHz BSS downlink operations will become effective no later than 2007, and (iii) the 17.3-17.8 GHz band has not been allocated for the NGSO operations that SkyBridge has proposed in any event.[29]

In addition, as DIRECTV has noted previously, SkyBridge has no basis for objecting to BSS reverse-band operations at 17.3-17.8 GHz until it has been established that *SkyBridge* can co-exist on a non-interference basis with existing BSS operations in that band. As the Commission well knows, SkyBridge's proposed NGSO operations would impose limitations upon, and would create interference problems with, existing BSS operators such as DIRECTV that have spent billions of dollars to construct and deploy operating satellite systems, and that today provide service to millions of subscribers. DBS service in particular is looked to as the "singularly most significant competitive alternative to cable."[30] Until SkyBridge's proposed system is shown definitively not to pose interference problems for those DBS satellite service providers

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proposing reverse band operations is somehow to "constrain" uplink operators at 17 GHz. *Id.* at 6. SkyBridge is confused. DIRECTV's previous filings have simply pointed out that today at 17.3-17.8 GHz there are very few operators of BSS uplinks. Thus, while there may be an interference risk posed to reverse band BSS downlink operations by these uplinks (including interference from DIRECTV's own BSS uplinks into its reverse band downlinks), the small number of uplinks overall, combined with the ability to use shielding and take other measures to reduce interference, make this a manageable issue.

29 *See* Radio Regulations, Resolution No. 506.

30 Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming, CS Docket No. 98-102, Separate Statement of Commissioner Michael Powell (Dec. 17, 1998), at 2.

that already are licensed and operating uplinks at 17.3-17.8 GHz, SkyBridge's objections to reverse-band operations in those frequencies merit no consideration.

III. BLANKET LICENSING PFD THRESHOLDS SHOULD NOT INHIBIT NON-VSAT USES OF THE KA BAND

With respect to Ka band issues, DIRECTV reiterates its concern that the Commission not impose a set of rules to govern blanket licensing for VSAT-type terminals that impinges unnecessarily on non-VSAT systems, such as systems that may utilize the Ka band for DTH use. Downlink PFD values that might be perfectly acceptable for VSAT-type operations at Ka band should not be imposed on other types of Ka band operations. Just as at Ku band today, operators of DTH systems at Ka band should not be subject to downlink power thresholds, and should be permitted to freely coordinate higher power limits with adjacent systems.

To the extent that downlink PFD coordination thresholds may be imposed, however, the Commission should accommodate a variety of uses of the Ka band spectrum to the maximum possible extent. DIRECTV is concerned in this regard that the analyses that have been done to date have been focused too narrowly on the identification of technical parameters to allow the Commission to issue blanket licenses for large numbers of small-antenna GSO FSS earth stations operating in a 2° spacing environment.[31] Parties do not appear to have contemplated in detail the prospect of non-VSAT Ka band uses. VSAT-type parameters cannot and should not be blindly applied

[31] *See, e.g.*, Report of the GSO Ka-Band Blanket Licensing Industry Working Group (Nov. 19, 1998) ("GSO Blanket Licensing Report").

to non-VSAT uses of the Ka band without detailed consideration.[32]

In its initial comments, DIRECTV submitted a generic DTH Ka band link budget in part to show that the downlink PFD threshold of –120 dBW/m^2/MHz proposed in the *Notice* will not accommodate Ka band DTH operations. Other parties have proposed a range of other values[33] which at a minimum suggest that more work must be done with respect to downlink coordination thresholds. Such coordination thresholds, if they are to apply to non-VSAT Ka band uses, should be developed with an eye toward facilitating innovative and pro-competitive uses of the band. Although no consensus has been reached with respect to the need for or the substance of PFD coordination thresholds to be imposed on DTH services at Ka band, should the Commission feel compelled to impose such thresholds, it should adopt a value of at least –116 dBW/m^2/MHz to accommodate the provision of DTH services. To foreclose Ka band DTH uses would be short-sighted and contrary to the public interest.

IV. CONCLUSION

DIRECTV once again urges the Commission to allocate spectrum, and to adopt changes to its rules, consistent with the positions set forth above. Specifically, for the reasons described in its *Petition*, Comments and these Reply Comments, DIRECTV

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[32] *See* Separate Statement of Hughes Communications Galaxy, Inc. to GSO Blanket Licensing Report (Nov. 19, 1998), at 2-3 (observing that the issues in this proceeding "are far too complex, and the stakes too high, to unthinkingly apply parameters outside the context in which they were developed," and noting DIRECTV's related concern that Ka band DTH uses be accommodated by any rules imposed).

[33] For example, TRW recommends a downlink PFD threshold of -118 dBW/m^2/40 MHz. TRW Comments at 8. Pegasus recommends a lower off-axis EIRP threshold and retention of PFD limits in Section 25.208. Pegasus Comments at 11, 12-13. VisionStar recommends a downlink PFD threshold of -117 dBW/m^2/MHz. VisionStar Comments at 10.

urges the Commission to:

- Allocate the 17.3-17.8 GHz band in this proceeding for BSS reverse band downlinks, imposing a use restriction prohibiting BSS operations until such time as the needs of the U.S. Government and the Department of Defense are accommodated, or 2007, whichever is earlier.

- Freeze immediately all licensing of FS users at 17.7-17.8 GHz.

- Grandfather existing FS users at 17.7-17.8 GHz and permit these systems to continue to operate on a co-primary basis with the BSS until April 2007. After this date, no FS systems should be licensed in the band, or at a minimum, FS users should be licensed on a strict secondary basis only.

- Allocate spectrum at 24 GHz for reverse band BSS feeder links.

- Ensure that its blanket licensing rules for VSATs at Ka band do not constrain DTH use of those frequencies, with no downlink PFD coordination thresholds imposed. In the event that downlink PFD coordination thresholds are imposed on DTH services at Ka band, DIRECTV again urges that a value of -116 dBW/m^2/MHz be adopted.

Respectfully submitted,

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